DOCUMENT RESUME

ED 247 814 HE 017 461

TITLE	Charges to Working Groups on the Essential Knowledge, the Fundamental Skills, and the Personal Qualities, Values and Attitudes That Comprise the General Professional Education of the Physician and College Preparation for Medicine.
INSTITUTION	Association of American Medical Colleges, Washington, D. C.
SPONS AGENCY	Kaiser Foundation, Oakland, Calif.
PUB DATE	82
NOTE	45p.; For related document, see HE 017 462.
AVAILABLE FROM	Association of American Medical Colleges, One Dupont Circle, N.W., Suite 200, Washington, DC 20036.
PUB TYPE	Reports - Descriptive (141) -- Viewpoints (120)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*College Preparation; College Programs; Committees; Competence; Educational Improvement; Educational Needs; Higher Education; *Knowledge Level; *Medical Education; Position Papers; *Program Evaluation; *Skill Development; *Student Attitudes; Values
IDENTIFIERS	*Association of American Medical Colleges

ABSTRACT

Charges and assumptions of three AAMC (Association of American Medical Colleges) working groups that reviewed the general professional education of physicians and college preparation for medicine are presented. The 3-year project assessed the present educational approaches and developed recommendations to improve instructional programs and learning. Broad discussions were also stimulated among the medical school and college faculties and their disciplinary societies about medical and college education. Three working groups considered three major facets of the problem: (1) essential knowledge, (2) fundamental skills, and (3) personal qualities, values, and attitudes. To guide deliberations, charges were written for each working group and a series of assumptions and questions arising from the assumptions were posed for each facet. Assumptions guiding the working group on essential knowledge covered such concerns as: information management technology, college science, broad baccalaureate education, biomedical science, and clinical disciplines. Assumptions dealt with by the fundamental skills group covered areas such as: skill development during college, skills during clerkshops and skills in the prevention of diseases. Concerns of the third working group had to do with personal growth and development, curiosity, competition, concern for patient welfare, and coping with emotional stress. A roster of the AAMC project panel and staff is included. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED247814

CHARGES TO WORKING GROUPS

ON THE ESSENTIAL KNOWLEDGE, THE FUNDAMENTAL SKILLS AND THE PERSONAL QUALITIES, VALUES AND ATTITUDES THAT COMPRISE THE GENERAL PROFESSIONAL EDUCATION OF THE PHYSICIAN AND COLLEGE PREPARATION FOR MEDICINE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

AAMC

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

NE 017 461

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The AAMC Project on the General Professional Education of the Physician is made possible by a grant from the Henry J. Kaiser Family Foundation. For additional information, contact August G. Swanson, M.D., Project Director, Association of American Medical Colleges, One Dupont Circle, N.W., Room 200, Washington, D.C. 20036.

© Copyright 1982 by the Association of American Medical Colleges. All material subject to this copyright may be photocopied for the noncommercial purpose of scientific or educational advancement. Printed in the U.S.A.

Contents

Introduction 1

Charge to Working Group 1/ Essential Knowledge 7

The Working Group on Essential Knowledge is charged to consider the knowledge that all students must acquire to provide the foundation for later specialized education and for continued learning throughout their professional careers and to describe approaches faculties might adopt to distinguish this knowledge base from that attained in specialty educational programs or in programs of study leading to advanced degrees in disciplines relevant to medicine.

Assumption 1.1 9
Information management technology and essential knowledge

Assumption 1.2 10
College science courses and essential knowledge

Assumption 1.3 11
Using the MCAT to identify essential knowledge

Assumption 1.4 12
Promoting broad baccalaureate education

Assumption 1.5 13
Essential biomedical science knowledge

Assumption 1.6 14
Teaching essential concepts

Assumption 1.7 15
Learning in the clinical disciplines

Assumption 1.8 16
Differentiating essential clerkships

Assumption 1.9 17
Learning in ambulatory settings

Assumption 1.10 18
Acquiring knowledge from special areas

Assumption 1.11 19
Using NBME exams to measure achievement of essential knowledge

Charge to Working Group 2/ Fundamental Skills 21

The Working Group on Fundamental Skills is charged to consider those skills that all students should acquire during college and medical school to gain essential knowledge; to adapt to the need for continued independent learning; to obtain, assess, and synthesize the information needed for the solution of clinical problems; and to carry out those tasks that are the particular responsibility of the physician. Approaches should be described to improve students' acquisition of fundamental skills.

Assumption 2.1 23
Developing skills during college

Assumption 2.2 24
Developing skills for independent learning

Assumption 2.3 25
Developing skills in assessing medical literature

Assumption 2.4 26
Developing skills in computer technology

Assumption 2.5 27
Acquiring clinical skills during medical school

Assumption 2.6 28
Acquiring skills during clerkships

Assumption 2.7 29
Acquiring skills in ambulatory settings

Assumption 2.8 30
Acquiring skills in the prevention of disease

Assumption 2.9 31
Acquiring skills in working with other health practitioners and technicians

Charge to Working Group 3/ Personal Qualities, Values, and Attitudes 33

The Working Group on Personal Qualities, Values, and Attitudes is charged to describe desirable traits that students should develop during college preparation for medicine and during medical school, to assess how faculties might best select students who possess the capability to develop these traits, and to consider how faculties can foster the development of these traits in college and medical school.

Assumption 3.1 35
Fostering personal growth and development

Assumption 3.2 36
Stimulating curiosity, intellectual drive, and imagination

Assumption 3.3 37
Promoting competition and hard work as positive forces

Assumption 3.4 38
Setting a high priority of concern for the patient's welfare

Assumption 3.5 39
Recognizing equivalency of the physician's multiple responsibilities

Assumption 3.6 40
Coping with emotional stress

Roster/AAMC Project Panel 41

Roster/AAMCProject Staff 42

Introduction

Since the turn of the century, medical education in the United States has evolved from a predominantly apprenticeship-to-a-practitioner mode to a university-based, highly structured sequence of educational programs. Until the early 1940s, medical school graduates usually completed a one-year internship and began practicing medicine as general practitioners. Since World War II, however, medical school graduates have specialized increasingly until now over 94 percent plan to spend three or more years in specialized graduate medical education after they receive their M.D. degree.

This shift toward specialized medical practice has modified the major obligation of an educational program leading to the M.D. degree from that of educating students who will become practitioners after one year of internship to educating students who will continue into a specialized graduate phase. Its goal, in other words, has changed from one of educating general practitioners to one of providing the general professional education of future specialized practitioners.

For this reason, the Association of American Medical Colleges has undertaken a three-year project, supported by a grant from the Henry J. Kaiser Family Foundation, to review and appraise the *general professional education* of the physician and college preparation for medicine. An 18-member panel comprised of individuals drawn from four-year colleges and universities, from U.S. and Canadian medical schools, and from the practice of medicine, heads this effort. Steven Muller, Ph.D., President of the Johns Hopkins University and the Johns Hopkins Hospital, is Chairman of the panel, and William P. Gerberding, Ph.D., President of the University of Washington, is Vice Chairman (see page 41).

The project has two purposes:

- To assess the present approaches to the *general professional education* of the physician and college preparation for medicine and to develop recommendations and strategies to improve the effectiveness of instructional programs for the promotion of learning; and
- To stimulate broad discussions among the medical school and college faculties and their disciplinary societies about their philosophies and approaches to medical education and college preparation for medicine.

The greatest emphasis is placed on the stimulation of discussion among faculties, for the faculties of colleges and medical schools are ultimately responsible for selecting and teaching what students are expected to learn, and they also are responsible for setting the tone of the learning environment. A paradigm disseminated by a committee or national organization cannot be adopted universally by the diverse colleges and medical schools that are involved in college preparation for medicine and the general professional education of physicians. It is hoped, however, that as leaders in institutions and academic societies discuss the many issues that will be identified in the course of this

project and contribute their ideas for consideration, they will be influenced to examine their own philosophies and approaches and to modify their programs.

Project Approach

To stimulate and facilitate discussion at both the national and local levels, three facets will be considered across the premedical, preclinical, and clinical phases of medical education. Although the panel recognizes that these phases are usually considered separately, it believes that medical education should be examined without the conceptual constraints that these divisions can impose. Working groups for each of these facets have been appointed:

- *Essential Knowledge*—The knowledge that all students must acquire to provide the foundation for later specialized education and for continued learning throughout their professional careers. This knowledge base must be distinguished from that attained in specialty educational programs or in programs of study leading to advanced degrees in disciplines relevant to medicine.
- *Fundamental Skills*—Those skills that all students should attain during college and medical school as the basis to continue their learning beyond medical school, to apply scientific principles to the solution of clinical problems, and to carry out those tasks that are unique to a physician's role.
- *Personal Qualities, Values, and Attitudes*—Those traits that all physicians should possess. These include curiosity, intellectual drive and imagination, emotional stability, ethical integrity, and humaneness.

To guide deliberations, charges have been written for each working group and a series of assumptions and questions have been posed for each facet. **These are not exhaustive and further elaboration of both assumptions and questions is encouraged.** Figure 1 illustrates the scope of the general professional education of the physician and college preparation for medicine and shows the range across which the three facets will be considered.

Institutions and academic societies have been invited to participate in this effort and have been requested to organize a similar or compatible approach using this booklet as the basis for discussion. The project schedule appears in Figure 2. In 1983 the project panel will hold regional hearings where the views of faculties and societies can be presented.

General Assumptions

Following are some general assumptions about students, graduates, the institutions, and medical practice **between now and 1990** that should be factored into the deliberations of all the working groups:

1. Students will continue to enter medical school with varying backgrounds from diverse colleges that have varying resources.
2. Students will have increasing difficulty in financing their education.
3. Medical school enrollments will decline.
4. The number of applicants to medical school could well decrease to fewer than two applicants for each position.

5. The proportion of women in medical school will exceed 30 percent, a level that will be sustained.

6. Medical schools will continue their efforts to recruit and enroll disadvantaged minority students, albeit the cost of medical education and competition for these students from other professions will make recruitment difficult.

7. Almost all medical school graduates will enter programs of graduate medical education.

8. The opportunities for medical school graduates to pursue the specialty of their choice will be constrained by the number of residency positions available in each specialty.

9. Ninety to ninety-five percent of those completing specialty education will engage in the practice of medicine; only five to ten percent will pursue careers in academic medicine.

10. Except for pediatrics, those entering the practice of medicine in 1990 will encounter a large proportion of elderly patients who may suffer from diseases involving multiple organ systems that will require complicated treatment and assistive care.

11. Young physicians will practice predominantly in organized groups and systems. Many more will be employed in salaried positions than are at present.

12. Advances in biomedical knowledge and the application of sophisticated technology for diagnosis and treatment will require increasing use of computers by physicians.

13. Medical school faculties will continue to be involved in research and in the provision of medical service. Successful accomplishment of these missions will require meeting increased competition among faculties for research support and between faculties and community physicians for patient care resources.

FIGURE 1

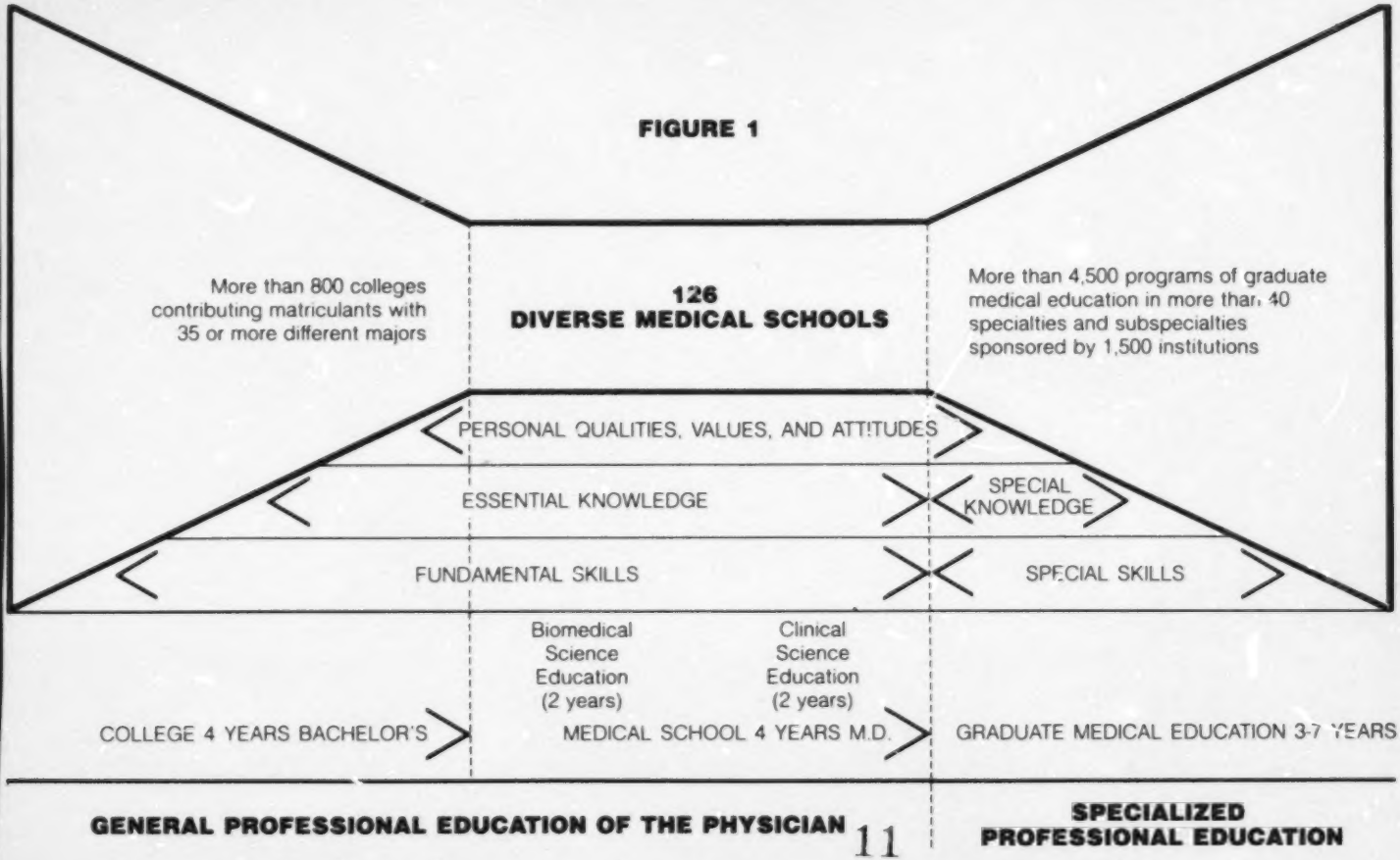
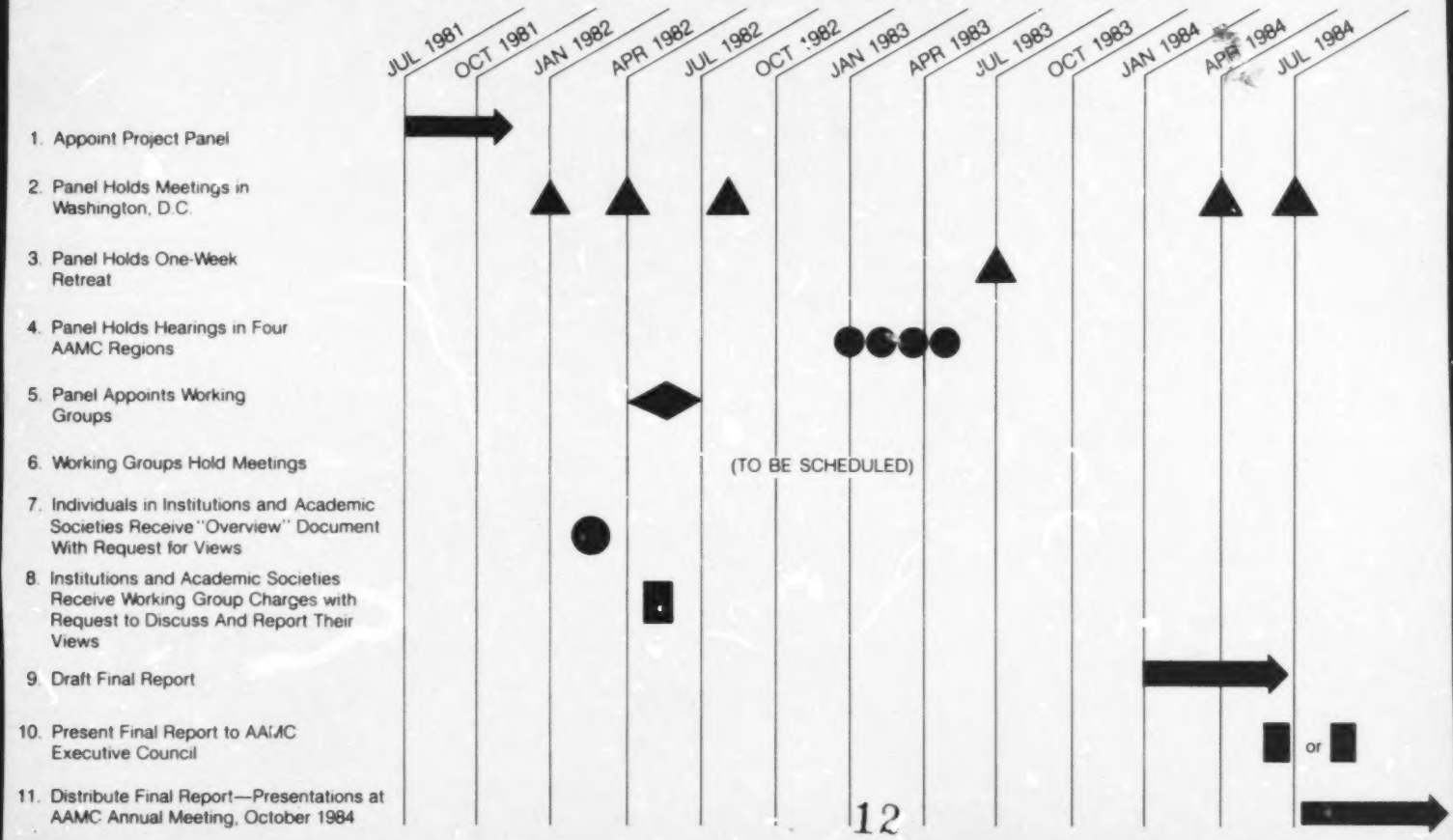

More than 800 colleges contributing matriculants with 35 or more different majors
126
DIVERSE MEDICAL SCHOOLS
More than 4,500 programs of graduate medical education in more than 40 specialties and subspecialties sponsored by 1,500 institutions
PERSONAL QUALITIES, VALUES, AND ATTITUDES
ESSENTIAL KNOWLEDGE
SPECIAL KNOWLEDGE
FUNDAMENTAL SKILLS
SPECIAL SKILLS
Biomedical Science Education (2 years)
Clinical Science Education (2 years)
COLLEGE 4 YEARS BACHELOR'S
MEDICAL SCHOOL 4 YEARS M.D.
GRADUATE MEDICAL EDUCATION 3-7 YEARS
GENERAL PROFESSIONAL EDUCATION OF THE PHYSICIAN
SPECIALIZED PROFESSIONAL EDUCATION

FIGURE 2
SCHEDULE OF ACTIVITIES AAMC PROJECT ON THE GENERAL PROFESSIONAL EDUCATION OF THE PHYSICIAN AND COLLEGE PREPARATION FOR MEDICINE


JUL 1981
OCT 1981
JAN 1982
APR 1982
JUL 1982
OCT 1982
JAN 1983
APR 1983
JUL 1983
OCT 1983
JAN 1984
APR 1984
JUL 1984
1. Appoint Project Panel
2. Panel Holds Meetings in Washington, D.C.
3. Panel Holds One-Week Retreat
4. Panel Holds Hearings in Four AAMC Regions
5. Panel Appoints Working Groups
6. Working Groups Hold Meetings
(TO BE SCHEDULED)
7. Individuals in Institutions and Academic Societies Receive "Overview" Document With Request for Views
8. Institutions and Academic Societies Receive Working Group Charges with Request to Discuss And Report Their Views
9. Draft Final Report
10. Present Final Report to AAMC Executive Council
or
11. Distribute Final Report—Presentations at AAMC Annual Meeting, October 1984

Charge to Working Group 1/ Essential Knowledge

The Working Group on Essential Knowledge is charged to consider the knowledge that all students must acquire to provide the foundation for later specialized education and for continued learning throughout their professional careers and to describe approaches faculties might adopt to distinguish this knowledge base from that attained in specialty educational programs or in programs of study leading to advanced degrees in disciplines relevant to medicine.

Medical school faculties are responsible for the education of several types of students. Most basic science faculties teach a variety of masters and doctoral degree candidates, and clinical faculties teach specialty residents and subspecialty fellows. In the main, these students have differentiated into relatively narrow fields of interest, and their mentors share with them common interests in the discipline or field.

Medical students, in contrast, are relatively undifferentiated. The purpose of their general professional education is to provide them with a breadth of essential knowledge from many disciplines and specialties. They cannot achieve the same depth of knowledge that graduate students or residents acquire in their areas of special concentration. However, because circumscribing essential knowledge is difficult and because faculties consist principally of specialists who have great depths of knowledge, they are likely to assume that the essential knowledge for themselves is also essential knowledge for all physicians. This expectation imposes excessive courseloads on medical students and requires that they memorize large volumes of material.

Assimilating essential knowledge and acquiring fundamental skills, values, and attitudes are symbiotic functions. Both faculties and students must direct concurrent attention to each of these facets. Memorization of information does not ensure the acquisition of skill in its application or the development of an attitude of regard and respect for the importance of the information derived from one discipline or another. Rather, the need to memorize vast quantities of information may obtund the acquisition of skills and the development of desirable attitudes. Conversely, students who lack essential knowledge can neither acquire fundamental skills nor develop appropriate attitudes.

The following steps are suggested in considering ways to improve students' acquisition of general knowledge during their college preparation for medicine and general professional education:

- Devise methods for the establishment of criteria for the identification of essential knowledge.

- Examine ways in which the educational strategies usually employed can either be made more effective or changed.
- Explore alternative strategies to teaching and learning essential knowledge that will facilitate the acquisition of fundamental skills and appropriate values and attitudes.

Ultimately, it is the responsibility of each faculty to adopt criteria for the identification of essential knowledge and to develop a curriculum and educational strategy suited to its institutional facilities and resources. The deliberations of the Working Group on Essential Knowledge, as well as groups at institutions and in academic societies, should provide the faculties with a compendium of approaches to the resolution of these issues.

To guide deliberations and stimulate discussion, a series of assumptions are set forth, and questions about each are posed.

Assumption 1.1

Information management technology is likely to provide physicians with almost instantaneous access to data bases, general and specific information, and computer-based systems to assist in decision-making.

A. How will these developments influence the characteristics and quantity of essential knowledge that students must learn?

B. What approaches might faculties use to model the effect of these developments on the essential knowledge base in order to draw valid conclusions about modifying educational programs?

Assumption 1.2

The majority of U.S. medical schools require that entering students have had college courses in inorganic and organic chemistry, introductory physics, and introductory biology to prepare them to take the basic science courses in medical school.

A. By what methods can the criteria for the identification of the essential knowledge to be acquired by students from these courses be established?

B. What relative weighting do college faculties give to teaching scientific information as compared to teaching scientific concepts in these disciplines?

C. What other approaches should be considered to prepare students for study in the biomedical sciences?

Assumption 1.3

The Medical College Admission Test (MCAT) evaluates students' achievement in chemistry, physics, and biology. It provides a national standard to assess the adequacy of preparation of students from diverse backgrounds and colleges.

A. By what methods are the criteria established to identify essential knowledge in the MCAT sections on chemistry, biology, and physics?

B. What modifications should be made in these sections of the MCAT?

C. How should medical schools use the evaluative information obtained from these sections?

Assumption 1.4

Students entering medical school should have had a broad baccalaureate education that provides them with an understanding of the social, economic, and political context of the society in which they live, that fosters appreciation of the arts and literature, and that enables them to think and write clearly.

A. What methods might faculties employ to establish criteria to define breadth of education?

B. What subject areas might be included in the Medical College Admission Test to evaluate students' breadth of education?

C. What changes in medical school admissions policies would encourage students to acquire a broad baccalaureate education?

Assumption 1.5

So that students have the essential knowledge needed to understand normal and abnormal conditions and disease processes, study of the basic biomedical sciences traditionally precedes clinical study.

A. What methods can faculties employ to establish criteria for the biomedical science knowledge necessary for the general professional education of the physician?

B. Why must basic science study precede clinical study?

C. How can the assimilation of biomedical science knowledge be reinforced throughout medical school?

D. What changes in approach to graduate medical education would make possible greater involvement of basic science faculties in the education of residents?

Assumption 1.6

Study of the basic biomedical sciences provides students with the essential concepts needed to incorporate new knowledge into their care of patients in the future.

A. What methods can faculties employ to identify essential concepts that will equip students to assimilate new knowledge in the years after they graduate from medical school?

B. How can faculties encourage students to conceptualize the application of science and its principles to medicine and discourage their excessive memorization of scientific information?

Assumption 1.7

Study in the clinical disciplines provides students the opportunity to learn the essential knowledge that all physicians should have and also equips them with the knowledge they need to proceed to their specialized graduate medical education.

A. How do faculties now differentiate between the clinical knowledge that is essential for all physicians to have and the knowledge their graduates should have to be prepared for their specialized education?

B. What approaches might faculties use to achieve a consensus on the clinical knowledge that is essential for the general professional education of the physician and for preparation for specialized education?

Assumption 1.8

Students acquire essential knowledge in the clinical disciplines in clinical clerkship rotations required during the junior year and in elective clerkships during the senior year.

A. Which disciplinary clerkships provide the greatest opportunity to learn essential knowledge?

B. Which disciplinary clerkships might be reduced or eliminated?

C. Which disciplines usually offered only as elective clerkships should be required?

D. How might students' learning of essential knowledge during clerkship rotations be improved?

E. How might faculties develop alternatives to disciplinary clerkship rotations for teaching essential clinical knowledge?

Assumption 1.9

Clinical clerkships are predominantly based on hospital in-patient services, where care is provided to patients with acute illnesses. Clerkships in ambulatory settings, where patients with chronic disease can be followed by students, are relatively uncommon.

A. What deficits in essential knowledge may result from concentrating the clerkship experience on in-patient services?

B. Why are clerkships in ambulatory settings relatively uncommon?

C. What approaches might faculties use to increase students' opportunities to follow ambulatory patients with chronic problems?

Assumption 1.10

Knowledge from other disciplines or special areas not usually taught in medical schools is essential for the general professional education of the physician.

A. What disciplines or special areas receive insufficient emphasis in medical schools?

B. What methods might faculties use to establish criteria for their incorporation into college or medical school curricula?

C. What alternative approaches might faculties use to ensure that students acquire essential knowledge from these disciplines or special areas?

Assumption 1.11

Many faculties rely on the Part I and Part II examinations of the National Board of Medical Examiners certification sequence as a standard of measurement of students' achievement of the essential knowledge for their general professional education.

A. By what methods are the criteria established to identify the essential knowledge tested for in these examinations?

B. How do these examinations evaluate students' knowledge of essential concepts as opposed to their store of scientific information?

C. How do these examinations influence the structure and content of educational programs and students' perceptions of the faculties' educational goals?

D. Which influences are inconsistent with the educational philosophy of most faculties?

E. What alternative approaches might faculties use to evaluate students' achievement of essential knowledge?

Charge to Working Group 2/ Fundamental Skills

The Working Group on Fundamental Skills is charged to consider those skills that all students should acquire during college and medical school to gain essential knowledge; to adapt to the need for continued .ndependent learning; to obtain, assess, and synthesize the information needed for the solution of clinical problems; and to carry out those tasks that are the particular responsibility of the physician. Approaches should be described to improve students' acquisition of fundamental skills.

Students in any science-based discipline must be prepared to learn new material throughout their careers. While initially learning the essential knowledge in their discipline, they must acquire the skills needed to analyze literature in their field and to study independently. These fundamental skills are the same for medical students as for other students in scientific disciplines. However, medical students initially must assimilate a great breadth of essential knowledge. Their approaches to learning the knowledge essential for their general professional education should facilitate the development of their analytic and independent learning skills. The extent to which, as graduates, they will be able to practice effectively will depend in large part upon their ability to obtain, evaluate, synthesize, and use new information from multiple sources. Independent, lifelong learning by physicians will in the future surely be based upon their use of sophisticated electronic information storage and retrieval systems and advanced telecommunications facilities.

Applying scientific principles to clinical decision making is a fundamental skill that all physicians should have. Skill in scientific thinking is important for students in other scientific disciplines related to medicine as well, but its application to clinical decision making is a special responsibility for physicians. Clinical decision making is becoming more complicated as biomedical knowledge expands and as the alternatives for establishing diagnoses and selecting treatments become more numerous. Physicians increasingly will be expected to employ available alternatives efficiently and cost effectively. Although skill in selecting and using specific alternatives will be attained during specialized graduate medical education, students, during their general professional education, should acquire the basic skills needed to make scientifically based clinical decisions.

All medical students must acquire the fundamental skills particularly used by physicians. Examples of these are skill in history taking; skill in using instruments, such as the stethoscope and ophthalmoscope; and skill in carrying out procedures to obtain specimens and treat minor problems and injuries. After their graduation from medical school, they acquire more advanced skills during their specialized education.

The following steps are suggested in considering ways to improve students' acquisition of fundamental skills during their college preparation for medicine and general professional education:

- Describe those skills that should begin to be developed during college preparation.
- Differentiate the learning and analytic skills that medical students should acquire from those needed by other students in biomedical science disciplines.
- Detail the tasks that all physicians are expected to do and differentiate the fundamental skills needed to accomplish those from the skills learned by graduates to carry out specialized tasks.
- Examine approaches to teaching skills and evaluating their attainment and explore how they might be improved.
- Describe alternative approaches for teaching and evaluating fundamental skills that are commensurate with the assimilation of essential knowledge and the development of appropriate values and attitudes.

To guide deliberations and stimulate discussion, a series of assumptions are set forth, and questions about each are posed.

Assumption 2.1

During college preparation most students are provided the opportunity to develop skills in reading, quantitative analytic reasoning, and problem solving.

A. Which courses provide the greatest opportunity to develop these skills?

B. How effectively do the Skills Analysis:Reading, the Skills Analysis:Quantitative, and the Science Problems sections of the Medical College Admission Test evaluate these skills?

C. What relationship do the scores on these sections have to medical students' further development of these skills?

Assumption 2.2

In the process of learning the essential knowledge from biomedical and clinical disciplines, medical students should develop study skills that can be adapted to independent learning later in their careers.

A. What are the educational approaches used by faculties that do not facilitate students' development of independent learning skills?

B. What study habits are least likely to be adaptable to the development of independent learning skills?

C. What educational strategies might faculties employ to facilitate students' development of skill in independent learning?

Assumption 2.3

All faculties believe that physicians should be skillful in assessing medical literature and that this fundamental skill must be developed by students as they progress through their college preparation and general professional education.

A. What strategies do faculties use to develop students' skills in analysis and criticism?

B. How do faculties evaluate their students' progress in the development of these skills?

C. What alternative approaches might faculties try to facilitate the development of these skills?

Assumption 2.4

In the future, physicians increasingly will have sophisticated electronic data retrieval systems, computer-based decision-making assistance, and advanced telecommunications technology at their disposal.

A. What level of familiarity with these technologies do most entering medical students have?

B. How do faculties now use these resources in their education of medical students?

C. What approaches might faculties use to prepare students to use these technologies effectively later in their careers?

Assumption 2.5

All physicians should have certain fundamental skills, which are acquired during medical school. These skills include obtaining information by interviewing patients; obtaining information by observing and examining patients; making reasoned decisions in selecting information to be obtained from laboratory analyses and cost-effective technical procedures, establishing diagnostic probabilities, deciding on the need for intervention or consultation, and selecting therapeutic regimens and/or procedures; obtaining patient cooperation and compliance in accomplishing the desired outcome; and applying emergency life-saving measures.

A. How do faculties decide the level to which these skills should be developed by medical students during their general professional education?

B. What methods might faculties employ to differentiate those skills that are basic and fundamental from those that should be attained by graduates during their specialized professional education?

C. How can faculties better teach students to obtain and integrate information about patients' personal backgrounds and social environments into their diagnostic and therapeutic decision making?

Assumption 2.6

The opportunity to develop fundamental skills is provided by courses in physical diagnosis or introduction to clinical medicine, required rotations through clinical clerkships, and elective clinical clerkships.

A. What skills should students acquire before progressing into a clinical clerkship, and how should their acquisition of these be evaluated?

B. Which disciplinary clinical clerkships provide the greatest opportunity for learning fundamental skills?

C. Which disciplinary clinical clerkships might be reduced or eliminated?

D. Which clinical clerkships that are usually elective might be required?

E. How might students' acquisition of fundamental skills during clerkships be facilitated?

F. What alternative approaches might faculties use to teach fundamental skills during the general professional education of students?

G. How should students' acquisition of fundamental skills be evaluated?

Assumption 2.7

Clinical clerkships are predominantly based on hospital in-patient services, where care is provided to patients with acute illnesses. Clerkships in ambulatory settings, where patients with chronic disease can be followed by students, are relatively uncommon.

A. What fundamental skills are better learned in an ambulatory setting?

B. Why are clerkships in ambulatory settings relatively uncommon?

C. What approaches might faculties use to increase students' opportunities to follow ambulatory patients with chronic problems?

Assumption 2.8

All physicians should be skilled in identifying and applying measures to prevent disease.

A. How do faculties teach students the skills needed to identify and apply preventive measures?

B. What alternative approaches might faculties use to enhance students' skills in identifying and applying preventive measures?

Assumption 2.9

The provision of medical care increasingly depends upon the contributions of a variety of health practitioners and technicians. Medical students should acquire the skills needed to work with and integrate other health practitioners and technicians into the treatment and care of patients.

A. What opportunities are medical students provided to learn about how the knowledge and skills of other health practitioners can contribute to patient care?

B. What skills do physicians especially need to use effectively diagnostic and therapeutic technologies that require highly trained technicians for their operation?

C. What approaches might faculties use to improve medical students' acquisition of the skills needed to work with others?

Charge to Working Group 3/ Personal Qualities, Values, and Attitudes

The Working Group on Personal Qualities, Values, and Attitudes is charged to describe desirable traits that students should develop during college preparation for medicine and during medical school, to assess how faculties might best select students who possess the capability to develop these traits, and to consider how faculties can foster the development of these traits in college and medical school.

Physicians should have personal qualities, values, and attitudes commensurate with a scholarly scientific profession that has the special responsibility to keep people well and to care for them when they are ill, injured, or dying. They should be creative and curious and have a high regard for learning. Their integrity should be beyond question and their assumption of responsibility for patients' welfare should transcend their own personal needs, interests, and ambitions. They should place equivalent value on their responsibilities to diagnose and treat illness and injury; to alleviate suffering; and to assist patients in keeping well and in adapting to impairment.

The foundation of students' personal qualities, values, and attitudes lies in their nurturance during infancy and childhood. However, college and medical students are still in a formative stage and their personal development can be influenced significantly during these late adolescent and early adult years. Both college and medical school faculties have the opportunity and responsibility to teach students the traits that all physicians should have.

The following steps are suggested in considering ways that students' personal qualities, values, and attitudes can be nurtured so that they develop traits desired in all physicians:

- Describe desirable traits and determine to what degree they should be possessed by all physicians or by certain kinds of specialists.
- Examine the academic and social milieu of colleges and medical schools to determine impediments to the acquisition by students of desirable traits.
- Describe the manifestations of both desirable and undesirable traits with particular attention to traits that are incompatible with being a physician.
- Describe the approaches faculties might adopt to improve the development of desirable traits by students during their college preparation and general professional education.

To guide deliberations and stimulate discussion, a series of assumptions are set forth, and questions about each are posed.

Assumption 3.1

The college and medical school years are periods of great personal growth and development for students. Formal learning in courses and informal learning derived from the milieu of college and medical school are of equal importance. The content and characteristics of both are the responsibility of faculties.

A. How well do faculties balance both of these responsibilities?

B. What approaches might faculties use to emphasize equally formal and informal learning?

Assumption 3.2

Faculties in college and medical school should stimulate their students' curiosity and promote their intellectual drive and imagination. Skepticism and openness to new ideas are important qualities for all students and are particularly important for physicians.

A. How well do faculties accomplish their responsibility to stimulate students' curiosity and promote their intellectual drive and imagination?

B. What faculty attitudes and behaviors are likely to stifle curiosity and intellectual drive?

C. How does peer pressure influence students' willingness to be skeptical and open to new ideas?

D. What approaches might faculties adopt to encourage students to be skeptical, curious, and open to new ideas?

Assumption 3.3

Competitiveness and devotion to hard work are not undesirable traits. However, fear of failure or perceptions that "the system" is unjust may cause students to lie and cheat.

A. How can both faculties and students promote the positive aspects of competition and hard work?

B. What faculty behaviors and attitudes are likely to stimulate unnecessary and counterproductive competition?

C. How much is peer pressure a cause of counterproductive competition?

D. What are the manifestations of an academic environment that indicate students may feel they are justified to lie and cheat?

Assumption 3.4

Concern for the patients' welfare should transcend physicians' concerns for their own personal needs, interests, and ambitions. The values and attitudes that establish this priority of concern should be reinforced during their general professional education.

A. What are the manifestations of a medical school environment that promote the development of concern for the welfare of patients as the highest priority?

B. What faculty behaviors and attitudes may inhibit students' placing a significant priority on patients' welfare?

C. What approaches should both faculties and students adopt to promote a high priority of concern for patients' welfare?

Assumption 3.5

Although physicians are expected to employ their knowledge and skill to cure disease, they should consider of equivalent importance their responsibilities to prevent disease, to relieve suffering, to assist the afflicted in adapting to impairments, and to console patients and their families.

A. How well do faculties demonstrate to students that these responsibilities of the physician are of equivalent importance?

B. What are the organizational and structural characteristics of medical school environments that either promote or inhibit demonstrating the equivalency of these responsibilities?

C. What approaches might faculties adopt to better demonstrate to students that all physicians should consider these responsibilities of equivalent importance?

Assumption 3.6

Emotional stress is to be expected in the course of physicians' general professional education and throughout their careers.

A. How sensitive are faculties to the experiences that may cause students to have emotional difficulties?

B. What approaches should faculties consider to reduce or eliminate unnecessary stress?

C. How should faculties assist students to develop healthy mechanisms to cope with emotional stress?

D. What approaches should faculties take when students with impaired coping mechanisms are identified?

Roster

AAMC Project Panel

Steven Muller, Ph.D., **Chairman**; President, The Johns Hopkins University and The Johns Hopkins Hospital

William P. Gerberding, Ph.D., **Vice-Chairman**; President, University of Washington

David Alexander, D.Phil., President, Pomona College

John S. Avery, M.D., Boulder, Colorado

Paula J. Clayton, M.D., Professor and Head, Department of Psychiatry, University of Minnesota Medical School

John W. Colloton, Director, The University of Iowa Hospitals and Clinics; and Assistant to the President for Statewide Health Services

James A. Deyrup, Ph.D., Professor of Chemistry, University of Florida

Stephen H. Friend, M.D., Ph.D., Resident in Pediatrics, Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine

*John A. Gronvall, M.D., Dean and Professor of Pathology, University of Michigan Medical School

**Robert L. Kellogg, Ph.D., Dean, College of Arts and Sciences, University of Virginia

†Victor R. Neufeld, M.D., F.R.C.P. (C), Professor of Medicine, and Director, The M.D. Programme, Faculty of Health Sciences, McMaster University

David C. Sabiston, Jr., M.D., James Buchanan Duke Professor of Surgery and Chairman, Department of Surgery, Duke University Medical Center

Karl A. Schellenberg, M.D., Ph.D., Professor and Chairman, Department of Biochemistry, Eastern Virginia Medical School

Robert T. Schimke, M.D., Professor and Chairman, Department of Biological Sciences, Stanford University

Lloyd H. Smith, Jr., M.D., Professor and Chairman, Department of Medicine, University of California, San Francisco, School of Medicine

Stuart R. Taylor, Ph.D., Professor in Physiology and Pharmacology, Mayo Medical School and Graduate School of Medicine, University of Minnesota

Daniel C. Tosteson, M.D., Dean, Faculty of Medicine, Caroline Shields Walker Professor of Physiology, Harvard University; and President, Harvard Medical Center

Burton M. Wheeler, Ph.D., Professor in English and Religious Studies, Washington University

---

* Chairman, Working Group on Essential Knowledge
** Chairman, Working Group on Personal Qualities, Values, and Attitudes
† Chairman, Working Group on Fundamental Skills

AAMC Project Staff

John A.D. Cooper, M.D., Ph.D., President

August G. Swanson, M.D., **Project Director**; Director, Department of Academic Affairs

Mary H. Littlemeyer, **Editor and Project Coordinator**; Senior Staff Associate, Department of Academic Affairs

Martha R. Anderson, Ph.D., Staff Associate, Department of Academic Affairs